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APPLICATION FOR LETTERS PATENT

Title: PORTABLE TERMINAL SYSTEM, PORTABLE TERMINAL,
METHOD OF CONTROLLING PORTABLE TERMINAL,
AND STORAGE MEDIUM STORING PROGRAM
FOR CONTROLLING PORTABLE TERMINAL

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PORTABLE TERMINAL SYSTEM, PORTABLE TERMINAL, METHOD OF CONTROLLING PORTABLE TERMINAL, AND STORAGE MEDIUM STORING PROGRAM FOR CONTROLLING PORTABLE TERMINAL

BACKGROUND OF THE INVENTION

The present invention relates to a portable terminal system, a portable terminal used in the portable terminal system, a method of controlling the portable terminal, and a storage medium storing a

5   program for controlling the portable terminal. In particular, the present invention relates to a portable terminal system which is capable of using information from an information source server connected to the internet, a portable terminal used in such portable terminal system, a method of controlling the portable terminal, and a storage medium storing a

10   program for controlling the portable terminal.

Description of the Related Art

In recent years, information is commonly provided through the internet by hyper text including multimedia data called WWW (World Wide Web). Generally, access to information on the WWW is made by an

15   application of a WWW browser which operates on personal computers. The WWW browser is a software module for perusing information on the WWW. In the following, the WWW browser will be simply referred to as "browser". Besides personal computers, there are other electrical appliances such as a television set that loads a browser, and information

20   on the WWW can be accessed through such appliances as well.

Also known is a portable terminal with a telephone function having a browser loaded. In accordance with Japanese Patent Application Laid-Open Publication No. 10-322478, WWW information is transmitted from a WWW server unit to a portable terminal where the

25   WWW information is made available for use. In addition, in this

portable terminal, links and text of the WWW information are separated, and only the links are organized for being read out, thus enabling a hyper link retrieval by speech.

In case when a user attempts to use information from an information source server connected to the internet, through a portable terminal such as a portable telephone, etc., the operation method will be different depending on the contents of the transmitted information. Therefore, it has been a problem that there are some difficulties in trying to gain access to the desired information. On the other hand, a unified operation method has been proposed to solve such problem, although it is not progressing, because information providers are concerned about the fact that such differences in operability are factors for the users to determine the quality of the service.

Furthermore, in representing the operation method, it should be more effective if voices, moving images, static images, etc. are used in addition to a display by characters, depending on the contents of information. It should be especially useful for physically handicapped people when they are provided with such options for learning the operation methods.

SUMMARY OF THE INVENTION

The present invention has been achieved in order to solve such problems in the prior art, and it is an object of the present invention to provide a portable terminal system and a portable terminal for use in this system, which require simple operation. Furthermore, another object of the present invention is to provide a portable terminal system, a portable terminal for used in this system, a method of controlling the portable terminal, and a storage medium storing a program for controlling the portable terminal, which can be easily operated particularly by people who have weak eyesight.

In accordance with the present invention, there is provided a portable terminal system comprising: a server storing text contents which are supposed to be displayed at a display section of a portable terminal, and help contents which show a method of utilizing said text

5   contents; and a portable terminal including a text browser provided for use in perusing the text contents stored in said server, and a help browser provided for use in perusing the help contents also stored in said server.

In accordance with the portable terminal system of the present invention, the portable terminal includes a text browser provided for use

10   in perusing text contents which are supposed to be displayed at a display section of the portable terminal, and a help browser provided for use in perusing help contents which show a method of utilizing said text contents.

In accordance with the portable terminal system of the present

15   invention, the portable terminal further includes a judging means for judging whether a message inputted from outside belongs to a text message or a help message, and activates either said text browser or said help browser in accordance with a result of judgement by the judging means.

20   In accordance with the portable terminal system of the present invention, the help browser outputs the help contents as text, voice, static images, moving images, or any combination of such representation formats.

In accordance with the portable terminal system of the present

25   invention, the portable terminal further includes a plurality of switch keys for use in operations for using the text contents, and a switch-key controlling means for setting each of said plurality of switch keys to either an effective state or an ineffective state depending on the contents of the help contents.

30   In accordance with the portable terminal system of the present

invention, in case when said switch keys are set to the effective state, said switch-key controlling means lights up light emitting sections corresponding to the switch keys being set to the effective state.

In accordance with the portable terminal system of the present invention, in case when said switch keys are set to the effective state, said switch-key controlling means vibrates operation buttons for those switch keys which are being set to the effective state.

In accordance with the present invention, there is provided a portable terminal comprising: a text browser provided for use in perusing text contents which are supposed to be displayed at a display section of the portable terminal; and a help browser provided for use in perusing help contents which show a method of utilizing said text contents.

In accordance with the present invention, the portable terminal further comprises: a judging means for judging whether a message inputted from outside belongs to a text message or a help message, enabling the portable terminal to activate either said text browser or said help browser in accordance with a result of judgment by said judging means.

In accordance with the portable terminal of the present invention, the help browser outputs said help contents as text, voice, static images, moving images, or any combination of such representation formats.

In accordance with the present invention, the portable terminal further comprises a plurality of switch keys for use in operations for using said text contents; and a switch-key controlling means for setting each of said plurality of switch keys to either an effective state or an ineffective state depending on the contents of said help contents.

In accordance with the portable terminal of the present invention, in case when said switch keys are set to the effective state, said switch-key controlling means lights up light emitting sections corresponding to

the switch keys being set to the effective state.

In accordance with the portable terminal of the present invention, in case when said switch keys are set to the effective state, said switch-key controlling means vibrates operation buttons for those switch keys which are being set to the effective state.

In accordance with the present invention, there is provided a method of controlling a portable terminal comprising the steps of: judging whether a message inputted from outside belongs to a text message or a help message; and activating either a text browser provided for use in perusing text contents which are supposed to be displayed at a display section of the portable terminal, or a help browser provided for use in perusing help contents which show a method of utilizing said text contents, in accordance with a result of judgment by said step of judging.

In accordance with the present invention, there is provided a storage medium storing a program for controlling a portable terminal, wherein said program comprises the steps of: judging whether a message inputted from outside belongs to a text message or a help message; and activating either a text browser provided for use in perusing text contents which are supposed to be displayed at a display section of the portable terminal, or a help browser provided for use in perusing help contents which show a method of utilizing said text contents, in accordance with a result of judgment by said step of judging.

Therefore, in the system of the present invention, in providing (displaying) information from an information source server connected to the internet, by a browser contained in a portable terminal (to be referred to as "radio client" in the following) such as a portable cellular phone, etc., the contents of information stored in the information source server (to be referred to as "contents" in the following) are divided into information on operation procedures for the user (to be referred to as "help contents" in the following), and information on the other things (to be referred to as

"text contents" in the following).   Furthermore, the portable terminal being a radio client contains functions of a text browser and a help browser for perusing the text contents and the help contents, respectively. In addition, in response to a process by the help browser, the radio client

5   is capable of displaying the operation procedures on its screen, showing and designating key buttons necessary for operation, responding to an operation through voice, and showing the operation procedures on the screen by moving images or static images, and graphics.

10   BRIEF DESCRIPTION OF THE DRAWINGS
                     The above and further objects, and the novel features of the present invention will more fully appear from the following detailed description when the same is read in connection with the accompanying drawings, in which:

15   Fig. 1 is a block diagram showing a configuration of a portable terminal system in one embodiment of the present invention;

                     Fig. 2 is a block diagram showing an example of an internal structure of a portable terminal for use in the portable terminal system shown in Fig. 1;

20   Fig. 3 is a view showing an appearance of the portable terminal shown in Fig. 2;

                     Fig. 4 is a flow chart showing an operation of the portable terminal shown in Fig. 2;

                     Fig. 5 is a view showing an example of a display on a display

25   screen of the portable terminal in case when help contents include character information;

                     Fig. 6A is a view showing an example of a display on a display screen of the portable terminal in case when the help contents include voice information;

30   Fig. 6B is another view showing the example of a display on a

display screen of the portable terminal in case when the help contents include voice information; and

Fig. 7 is a view showing an example of a display on a display screen of the portable terminal in case when the help contents include
5 static images, moving images, etc., besides character information.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, a description of a preferred embodiment of the present invention will be given in detail. In the
10 drawings, the same number is given to the same constituents.

With reference to Fig. 1, one embodiment of a portable terminal system in accordance with the present invention will be described.

In Fig. 1, an information source server 9 stores text contents 7 and help contents 8. A radio client 1 comprises a text browser 2, and a
15 help browser 3. The text browser 2 analyzes and displays the text contents 7, and executes an input process. The text browser 3 analyzes and displays the text contents 8, and executes an input process. The radio client 1 is connected to a radio gateway server 5 through a radio communication network 4, and the radio gateway server 5 is further
20 connected to the information source server 9 through a wire network 6 such as the internet, etc.

The radio gateway server 5 mediates between the radio client 1 and the information source server 9, passing data from the information source server 9 to the radio client 1. The radio gateway server 5 also
25 monitors the radio client 1 and executes user authentication. The information source server 9 provides information written in a language such as HTML (hyper text markup language), XML (extended markup language), WML (wireless markup language), compact HTML, etc., in response to a request by the client 1.

30 In order to provide information in an effective way, the

information provider finds some relevancy between the text contents 7 and the help contents 8. This certain relevancy is called a "link". At this time, a representation format (i.e. character information, voice information, moving image information, static image information,

5   graphics information, etc., or any combination of such types of information representation, used in reproducing the help contents in the radio client 1 by a browser) and an input format (i.e. designation of input keys, etc.) of the help contents 8 are inserted to the help contents 8, and thus the operation, the representation format, and the input method are

10   designated by the information provider.

In Fig. 2, an example of an internal structure of the radio client 1 is shown. The radio client 1 executes communications through the radio communication network 4 and a radio communication port 10. The radio communication port 10 executes transmission/reception

15   between a text browser and a help browser 3, which are contained in the radio client 1.

As illustrated in Fig. 2, the text browser 2 comprises a text analyzing section 15, a display processor 11, and an input processor 12. The text analyzing section 15 analyzes data received from the radio

20   gateway server 5, and executes appropriate process in response to the analyzed data. The display processor 11 conducts a display process to display the analyzed data at a display output device 17 such as a liquid crystal display device. The input processor 12 executes an input process for the input device 18 such as an input pad.

25   On the other hand, the help browser 3 depends mainly on an input method of the radio client 1. For instance, as shown in Fig. 3, a portable telephone terminal in particular is provided with some switch-key buttons including ten keys 21, arrow keys 22, soft keys 24, a decision key 23, etc. In this case, the ten keys 21 are used in inputting telephone

30   numbers, etc. The up arrow, down arrow, right arrow, and left arrow

keys 22 are pressed when moving a cursor, which is a help display on a screen 25 for stimulating inputs.   The soft keys 24 are used in designating a use under particular contents on the screen 25.   The decision key 23 is used in deciding an execution of a designated process.

5   All these switch-key buttons in Fig. 3 correspond to key buttons 20 in Fig. 2.   Furthermore, as shown in Fig. 2, the help browser 3 is provided with an output device 19 which is capable of emitting light beneath the key buttons, etc., using a light emitting diode (LED), complying with particular contents and user's status, thus attracting the user's attention.

10   As shown in Fig. 2, the help browser 3 is provided with a help analyzing section 16, a display processor 13, and an input processor 14. The help analyzing section 16 analyzes data received from the radio gateway server 5, and executes appropriate process in response to the analyzed data.   The display processor 13 conducts a display process.

15   The input processor 14 executes an input process.   The text analyzing section 15 and the help analyzing section 16 can execute the same kind of process, although in this case, they are indicated as different functions for better describing the structure of the present embodiment.

Fig. 3 illustrates an example in which the present invention is

20   applied to a radio client 1 being a portable telephone terminal.   The screen 25 in Fig. 3 is a combination of the input device 18 and the output device 17 shown in Fig. 2, and all kinds of inputs can be executed using the parts displayed on the screen.

Now the operation of the system based on the above-described

25   structure will be described with reference to a flow chart in Fig. 4.

Referring to Fig. 4, first, when certain contents are provided to the radio client 1 from the information source server 9, the contents go through a process for received message at the radio communication port 10 (step A1).   Here, the text browser 2 and the help browser 1 analyzes

30   the messages (description language group including XML, HTML and

WML containing a tag) contained in the received contents, and the contents including the messages.

When the input message belongs to text contents, it is processed by the text browser (step A2 → step A3). On the other hand, when the input message belongs to help contents, the help analyzing section 16 analyzes to decide the type of message output for the input message (step A2 → step A4).

As a result of such type judgement, when it is determined that the help contents include character information, a help process by text is executed (step A4 → step A5). In this case, the display will be as shown in Fig. 5, and the input operation will be limited to particular keys corresponding to which LEDs, etc. are internally provided to be lighted up. For example, in case of using only the right arrow and left arrow keys 22, and the upper right soft key 24, the internally provided LEDs, etc. corresponding to those keys are lighted up to indicate that only the key inputs by those keys can be accepted. In other words, only those keys are set available for valid key inputs. In Fig. 5, those limited keys are illustrated in reversed black and white. In this particular example, among those keys, the right arrow and left arrow keys 22 correspond to 'OK' and 'Cancel' indications on the screen 25, respectively, and one of the soft keys 24 (i.e. the upper right key) is associated with the operation for redrafting the help display.

In Fig. 5, a menu of an "On Line Help" is displayed on the screen 25. In this example, the menu of the "On Line Help" includes "How to play", "Current status", and "Top winners", and those menu items are given numbers 1, 2 and 3, respectively. When one of those numbers is inputted through a key-input, the corresponding menu item is executed.

On the other hand, when the help contents are determined as including voice information, as a result of the type judgement of step 4 in the flow chart of Fig. 4, then a help process by voice is executed (step A4

→ step A6). In this case, as illustrated in Fig. 6A, "Voice messages" will be displayed on the screen 25 to indicate that the output method for the help contents will be a voice output. In this particular example, the operation of reading out the help contents through voice when redrafting

5 the help display is assigned to one of the soft keys 24 (i.e. the upper right key). Consequently, the user can confirm the help contents through voice even when the user is under the circumstances where the display screen is invisible. The illustration shown in Fig. 6B indicates that the voice is outputted from a speaker 26 provided to the terminal.

10 In this case also, the input operation is limited to particular keys only, and LEDs, etc., internally provided corresponding to those keys are lighted up. In Fig. 6A, those limited keys are illustrated in reversed black and white.

Furthermore, when the help contents are determined as
15 including information of static images, moving images, graphics, animations, etc., besides character information, then a help process by moving images, static images, etc. is executed (step A4 → step A7). In this case, as shown in Fig. 7, there will be no "OK" and "Cancel" indications on the screen 25 as in the cases of Fig. 5, Fig. 6A and Fig. 6B,

20 but plane figures (e.g. triangles pointing right and left) indicating "rewind", "replay", and "fast forward" are displayed instead. The right arrow and left arrow keys 22 are associated with "fast forward" and "rewind" operations, respectively, and the operation key 23 is associated with a "replay" operation. In this case, when voice indication is included,

25 the help contents can be confirmed through voice by pressing the soft key 24, as in the case explained with reference to Fig. 6A and Fig. 6B. Therefore, the help contents can be confirmed even under the circumstances where the display screen is invisible.

In this case also, the input operation is limited to particular keys
30 only, and LEDs, etc., internally provided corresponding to those keys are

lighted up. In Fig. 6A, those limited keys are illustrated in reversed black and white.

As described above, the control method described with reference to Fig. 4 is applied to the system of the present invention, and the portable terminal is controlled by this control method. This control method includes a judging step for judging whether the message inputted from outside is a text message or a help message, and a browser activating step for activating the text browser or the help browser. The text browser is provided for perusing text contents which are supposed to be displayed on a display section of the portable terminal in response to the result of judgement at the judging step. The help browser is provided for perusing help contents introducing a method of utilizing the text contents. In the browser activating step, the help contents are outputted by text, voice, static images, or moving images.

With respect to the above-described portable terminal, although the help contents are used in simplifying the operation for the user, it is also possible to set the help contents for advertisement and publicity, which enables the user to become familiar with the services provided thorough commercial contents beforehand. For example, one service could be a provision of pay contents which is charged from the point a certain key designated by the help contents is pressed.

Consequently, in accordance with the present invention, by using the help contents and the corresponding help browser, certain operation methods that have not been able to be introduced to the user by the conventional text contents alone, become available. For instance, it is possible to designate only certain keys corresponding to certain contents for use, and set the key operations by other keys to become ineffective. In this way, the operations by the user can be simplified and false operations can be prevented at the same time.

Furthermore, in accordance with the present invention, not only

character information but also multi-media information including voice, static pictures, moving pictures, graphics, animations, etc. can be used, which are applicable for use as a manual at a factory site, for use in an equipment maintenance, for use in a guide to a certain place, and so

5   forth.

In addition, in accordance with the present invention, even a person having a trouble with eyesight can learn the operation method through hearing voice messages, and can execute the operation just like a non-handicapped person by feeling vibrations from the key buttons.   In

10   this case, a vibrator should be provided inside the portable terminal corresponding to each key button.

It is also obvious that the above-described control operation for the portable terminal can be executed when a storage medium storing a program for executing the process described with reference to Fig. 4 is

15   provided to control each part illustrated in Fig. 2.   Although it is not shown in Fig. 2, all kinds of storage mediums such as a semiconductor memory, magnetic disc device, etc. can be used for such storage medium.

Furthermore, it is also obvious that the above-described operation can be executed in a portable type computer, etc. by a program

20   stored in the above-described storage medium.   For this storage medium, for example, it is possible to use a semiconductor memory, a magnetic disc device, and other kinds of storage medium.

As described above, in accordance with the present invention, by using the help contents and the corresponding help browser, certain

25   operation methods that have not been able to be introduced to the user by the conventional text contents alone, become available.   For example, it is possible to designate only certain keys corresponding to certain contents for use and set the key operations by other keys to become ineffective.   Thus, the operations by the user can be simplified and false

30   operations can be prevented at the same time.   This should be noted as

one unique effect of the present invention.

Another effect of the present invention is that not only character information but also multi-media information including voice, static pictures, moving pictures, graphics, animations, etc. can be used, which are applicable for use as a manual at a factory site, for use in an equipment maintenance, for use in a guide to a certain place, and so forth.

Furthermore, another effect of the present invention is that even a person having a trouble with eyesight can learn the operation methods through hearing voice messages, and can execute the operation just like a non-handicapped person by feeling vibrations from the key buttons. In this case, a vibrator should be provided inside the portable terminal corresponding to each key button.

While the preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or the scope of the following claims.